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A CATECHIN 7-XYLOSIDE FROM *Ulmus laevis*

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Ulmus laevis Pall. (Russian elm) is widely distributed in Kazakhstan [1]. The bark of its young branches has long been used in folk medicine for the treatment of catarrhal diseases [2]. The chemical composition of this species has not previously been studied.

In the bark of the Russian elm we have detected nine flavans. We give the results of an investigation of a catechin xyloside. The xyloside was isolated by steeping with methanol followed by the dissolution of the dry residue from the methanolic extract in water and subsequent extraction with ether and with ethyl acetate. The xyloside passed into the ethyl acetate. Further purification was performed by partition chromatography on silica gel.

The catechin xyloside was isolated in the form of colorless needles with the composition $C_{20}H_{22}O_{10}$, mp 165-167°C, $[\alpha]_D^{20} -19.0^\circ$, (c 3.91; acetone), R_f 0.55 [butanol-acetic acid-water (40:12.5:29)] and 0.63 (2% acetic acid).

The elementary analyses of the xyloside itself and of its acetyl derivative corresponded to the calculated figures.

In the products of acid hydrolysis we detected (+)-catechin and D-xylose. Acylation with acetic anhydride in pyridine yielded a pentaacetyl derivative $C_{34}H_{36}O_{17}$ in the form of colorless needles with mp 181-183°C, $[\alpha]_D^{20} -76^\circ$ (c 0.50; acetone), R_f 0.58 (TLC in the benzene-acetone (8:2) system). PMR spectrum ($CDCl_3$), ppm: δ 1.94 (1 al. Ac), 2.02 (3 sugar Ac), 2.22 (3 ar. Ac).

The physicochemical constants of the xyloside itself and of its acetyl derivative, and also the PMR spectrum of the acetyl derivative showed its complete identity with the (+)-catechin 7- β -D-xylopyranoside isolated from *Spirea hypericifolia* [3]. It must be mentioned that catechin in the form of glycosides has been found in plants extremely rarely.

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